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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,480	02/02/2001	Kenichi Terai	28569.8100	7134

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EXAMINER

WOO, STELLA L

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 06/03/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/776,480

Applicant(s)

TERAI ET AL.

Examiner

Stella L. Woo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4, 5, 6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Verdick (US 5,684,879).

Regarding claim 1, Verdick discloses a headphone system (head mounted speaker assembly and multi-channel audio processing system), comprising:

a headphone (head mounted speaker assembly 80; Figure 4); and

a signal processing circuit (multi-channel processor 70),

wherein the headphone (Figure 8) includes:

a first speaker (right front speaker 2) and a third speaker (right rear speaker 4),

a second speaker (left front speaker 1) and a fourth speaker (left rear speaker 3), and

a support (headband 30, headstrap 34, extension arms 45; Figure 1).

Regarding claims 2-3, the multi-channel audio processor 70 provides realistic surround sound experience (col. 2, lines 11-15, 50-57; col. 4, lines 28-33, 45-51).

Regarding claims 6-7, see Figure 3.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verdick in view of Yoshimura et al. (US 3,984,885, hereinafter "Yoshimura").

Verdick differs from claims 4-5 in that it does not specify outputting lower frequency signals one set of speakers and outputting higher frequency signals to another set of speakers. However, Yoshimura teaches the desirability of separately outputting higher frequency signals and lower frequency signals in a multi-channel, stereophonic headphone system (col. 2, lines 8-63) so that the signals above 5 or 6 kHz are separated from the lower pitched sounds until they reach a listener's ear (col.2, lines 61-63; col. 1, lines 35-48). It would have been obvious to an artisan of ordinary skill to incorporate such separation of lower and higher frequency audio signals, as taught by Yoshimura, within the stereophonic headphone system of Verdick in order to provided true four-channel panoramic sound reproduction, as suggested by Yoshimura.

5. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verdick in view of Nagayoshi (US 6,603,863).

Verdick differs from claims 8-9 in that it does not specify a low frequency dedicated speaker located in the vicinity of a rear part of the listener's head. However, Nagayoshi teaches the desirability of incorporating a dedicated low-frequency speaker (vibration generating unit 14) within a headphone so that vibrations perceived at the rear part of the listener's head provides the

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user with a dynamic sound effect (Abstract; Figures 2, 4) such that it would have been obvious to an artisan of ordinary skill to incorporate such a dedicated low-frequency speaker, as taught by Nagayoshi, within the headphone system of Verdick, in order to provide a listener with the same dynamic sound effect.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verdick in view of Nagayoshi, as applied to claim 8 above, and further in view of Lensing (DE 2608908 A1).

The combination of Verdick and Nagayoshi differs from claim 10 in that it does not specify locating the dedicated low-frequency speaker in the vicinity of the top of the listener's head. However, Lensing teaches the desirability of locating a speaker at the top of a listener's head (speaker K in Figure 1) in order to provide the impression of a "front sound" (Abstract). It would have been obvious to an artisan of ordinary skill at the time of invention to incorporate such well known positioning of a dedicated speaker at the top of a listener's head, as taught by Lensing, within the combination of Verdick and Nagayoshi, in order to effect a more natural sound reproduction.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verdick in view of Papiernik (US 4,821,323).

Verdick differs from claim 11 in that it does not specify a vibration unit supported so as to be in close contact with a temporal region of the head. However, Papiernik teaches the desirability of incorporating a vibration unit (vibrational audio output discs 18; Figure 2) on a stereo headphone so as to be placed against the temples of individual users (col. 2, lines 33-36; col. 4, lines 49-52) for the purpose of providing an enhanced acoustical effect. It would have been obvious to an artisan of ordinary skill to incorporate such placement of vibrational discs

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against a listener's temples, as taught by Papiernik, within the headphone system of Verdick in order to further enhance the acoustic experience for the listener.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verdick in view of Inanaga (US 5,761,314).

Verdick differs from claim 12 in that it does not specify the third and fourth speakers being rotatably connected. However, Inanaga teaches the well known connection of a headphone speaker so as to allow for rotatable adjustment (Figures 14, 15, 28, 29; col. 29, lines 21-31; col. 37, line 61 – col. 38, line 26) such that it would have been obvious to an artisan of ordinary skill to incorporate such rotatable connection, as taught by Inanaga, within the headphone system of Verdick in order to allow for individual adjustment of the speakers to accommodate the ear structure of different listeners.

Allowable Subject Matter

9. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

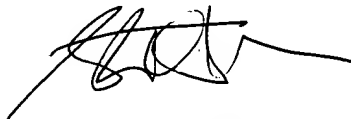
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pollak, Piribauer, and Koss show other headphone systems which separately output low and high frequency audio signals.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stella L. Woo whose telephone number is (703) 305-4395. The examiner can normally be reached on Monday-Tuesday, Thursday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (703) 305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stella L. Woo
Primary Examiner
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